Abstract

The aim of the study was to identify the relationship between selected fitness skills and the performance demonstrated in nomination races (NR) to the Czech Republic national team (NT) and for the Olympic Games. At the same time, we wanted to determine the optimal level of conditioning assumptions and define a model single-canoe sportsman. We were also searching to determine the differences between Senior NT and Junior NT.

The research sample (n=17) of the Czech highest competitions series (Czech Cup) participated in testing to determine level of strength, endurance and partly speed assumptions. There were also measured anthropometric parameters (body dimensions and composition) in detail. Testing took place only 5 weeks before NR. The condition indicators were subsequently correlated with the NR performance. For indicators for which significant and at least moderate correlation were found, the possibility of performance prediction was also found.

The highest correlations with performance were found in case of on-water sprints: 20m (r_s=0,65), 40m (r_s=0,86, resp. r_s=0,62), 80m (r_s=0,58) and 200m (r_s=0,795). The on-water sprints are the only indicators, which could be possibly used for the NR performance prediction. In multiple regression of the 2 40m and 1 200m sprints was found high determination coefficient (R^2=0,78) and acceptable low standard error of estimation (SEE=2,75). For the conditional indicators of lower specificity, correlation relationships were found only in case of the strength and speed-strength assumptions. In terms of anthropometric parameters, significant correlations were found just with body fat indicators.

Significant differences between Senior NT and Junior NT were found in the level of strength and strength-speed assumptions, as well as in anthropometric parameters that partially determine these assumptions.

Based on the level of fitness skills of the Senior NT and the detected differences between Senior NT and Junior NT, the optimal level of these skills and the model of elite C1 paddler were determined. The model of elite C1 paddler can be characterized as an athlete of average body weight and height, with minimal body fat and the specific hypertrophy of the upper limbs and chest, but with the minimalization of the lower limb hypertrophy. Muscle mass of the model C1 paddler is also characterized by very high quality (index ECM/BCM) and excellence in the

strength, speed-strength and anaerobic endurance assumptions. Aerobic endurance skills are average or slightly above average compared to other less successful competitors. Upon reaching peak aerobic capability, coaches of the senior and junior competitors should focus on strength, speed-strength and anaerobic endurance capabilities, especially in the form of a higher degree of motor specificity.

Key words: C1, canoe slalom, canoeing, kayaking, condition, high performance sport.